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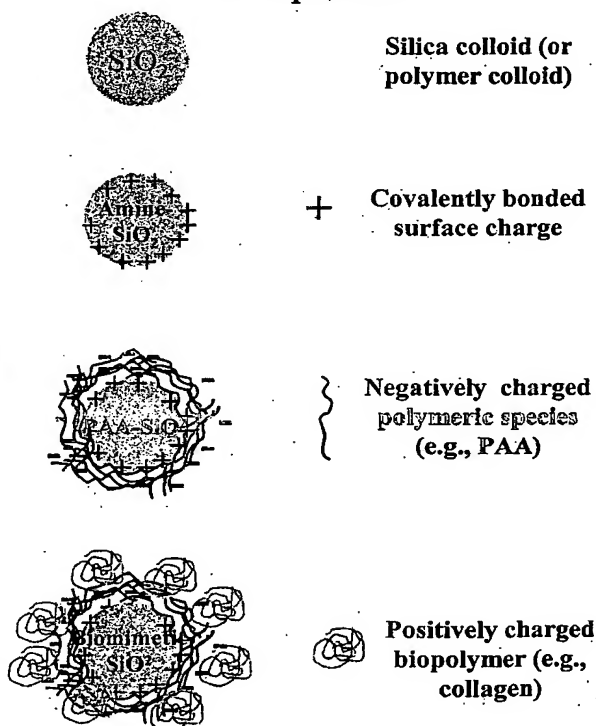
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(54) Title: **BIOMIMETIC HIERARCHIES USING FUNCTIONALIZED NANOPARTICLES AS BUILDING BLOCKS**

Flow Chart for Biomimetic Assembly on Nanoparticles



(57) Abstract: The invention provides a three-dimensional construct including a polymeric matrix and a nanoparticle as shown in Fig. 1 having a diameter of about 5 nm to about 10 microns, wherein the nanoparticle is (a) coated with at least two monomolecular layers each carrying biological information and (b) dispersed in the polymeric matrix at a density of at least 0.01 vol%. The invention further provides a method of presenting biological information to a cell or a tissue and thereby affecting at least one parameter of the cell or the tissue, the method involves providing the three-dimensional construct and contacting it with the cell or the tissue to present the biological information and thereby affecting at least one characteristic of the cell or the tissue. In certain embodiments, the diameter, the biological information and the density are selected to affect at least one characteristic of the cell or the tissue.



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